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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,754	12/21/2001	Shizuo Sumida	835.1026	2810

21171 7590 07/15/2004

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EXAMINER
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LAU, TUNG S

ART UNIT	PAPER NUMBER
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2863

DATE MAILED: 07/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/018,754

Applicant(s)

SUMIDA ET AL.

Examiner

Tung S Lau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 6-18-2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 11, 16 and 19-23 is/are rejected.
- 7) ☒ Claim(s) 7-10, 12-15, 17 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4-27-2004 has been entered.

### ***Election/Restrictions***

#### ***Combination/subcombination***

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-23, drawn to characteristic value identification with function model, classified in class 702, subclass 189.
  - II. Claim 24, drawn to characteristic value identification with mechanical part function model, classified in class 703, subclass 7.

The inventions are distinct, each from the other because of the following reasons:

Invention I and II are related as combination (invention I) and subcombination (invention II). Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particular of the subcombinations as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because Invention II, the

combination as claimed does not required mechanical part function model. The subcombination (invention II) has separate utility such as characteristic value identification with mechanical part function model.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Applicant's election with traverse of claims 1-23 in 5-18-2004 is acknowledged. The traversal is on the ground(s) that (a) indicates that invention must be independent and (b) there are no burden on the examination. This is not found persuasive because regarding (a) Invention I and II are related as combination (invention I) and subcombination (invention II). Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particular of the subcombinations as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because Invention II, the combination as claimed does not required mechanical part function model. The subcombination (invention II) has separate utility such as

characteristic value identification with mechanical part function model. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper. Regarding (b) examining different class (702/189 and 703/7) would required serious burden on the examination see MPEP § 806.05(c).

The requirement is still deemed proper and is therefore made FINAL.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 11, 2, 3, 4, 5, 6, 16, 19, 20, 21, 22 and 23 are rejected under 35

U.S.C. 102(b) as being anticipated by Yamamoto (U.S. Patent 5,594,670).

Regarding claim 1:

Yamamoto discloses a characteristic value identification method comprising a first process for preparing a functional model of a product part based on a potential quantity and a flow quantity representing energy applied to the product part (Col. 2, Lines 6-51), a second process for converting the functional model into a steady functional model in a steady state to identify a steady internal characteristic value (fig. 3, Col. 4-7, Lines 62-52), and a third process for

identifying a transient internal characteristic value of the functional model in a transient state by using the steady internal characteristic value (Col. 22-24, Lines 48-4).

Regarding claim 11:

Yamamoto discloses a characteristic value identification apparatus comprising block replacement means for a functional model of a product part prepared by a potential quantity and a flow quantity representing a strength and a quantity of energy applied to the product part (Col. 2, Lines 6-51), test reproduction means for reproducing at least one steady test model in a steady state of the functional model and at least one transient test model in a transient state (fig. 3, Col. 4-7, Lines 62-52), testing means of the product part for performing a steady test and a transient test respectively corresponding to the steady test model and the transient test model (Col. 22-24, Lines 48-4), measurement means for collecting steady test data and transient test data at a time when a steady test and a transient test of the product part are performed by the testing means (fig. 3, Col. 4-7, Lines 62-52), and calculating means for identifying a steady internal characteristic value of the steady test model by using the steady test data, for applying the steady internal characteristic value to the transient test model to generate transient phenomenon reproduction data (Col. 22-24, Lines 48-4), and for correcting the transient phenomenon reproduction data based on an error between the transient phenomenon reproduction data and the transient test data,

thereby identifying a transient internal characteristic value (Col. 22-24, Lines 48-4).

Regarding claim 23:

Yamamoto discloses a character value identification method including preparing a functional model of a product part based on a potential quantity and flow quantity representing energy applied to the product part (Col. 2, Lines 6-51, fig. 1, 2), converting the functional model into a steady state functional model to identify a steady internal characteristic value (fig. 3, Col. 4-7, Lines 62-52), identifying a transient internal characteristic value of the functional model in a transient state by using the steady internal characteristic value (Col. 22-24, Lines 48-4).

Regarding claims 2, 3, 4, 5, 6, 16, 19, 20, 21 and 22:

Yamamoto also disclose:

The characteristic value identification method wherein the second process includes; a first step for determining an internal characteristic value of at least one steady test model from the steady functional model (Col. 2, Lines 6-51), a second step for collecting steady test data by performing a test corresponding to the steady test model (Col. 2, Lines 6-51), and a third step for identifying a steady internal characteristic value of the internal characteristic value based on the steady test data (Col. 2, Lines 6-51) .

The characteristic value identification method wherein the first step determines the internal characteristic value from a government equation in the steady state of the functional model (fig. 3, Col. 4-7, Lines 62-52).

The characteristic value identification method wherein the third step converts the government equation into a recurrence equation to determine the steady internal characteristic value from a recurrence coefficient of the recurrence equation (fig. 3, Col. 4-7, Lines 62-52).

The characteristic value identification method wherein the third step divides the steady internal characteristic value into a known factor and an unknown factor to identify the steady internal characteristic value of the unknown factor (fig. 3, Col. 4-7, Lines 62-52).

The characteristic value identification method includes a first step for determining an internal characteristic value of at least one transient test model in a transient state of the functional model (Col. 2, Lines 6-51), a second step for collecting transient test data by performing a test corresponding to the transient test model (Col. 22-24, Lines 48-4), a third step for applying the steady internal characteristic value to the internal characteristic value of the transient test model to generate transient phenomenon reproduction data (Col. 22-24, Lines 48-4), and a fourth step for correcting the transient phenomenon reproduction data based on an error between the transient phenomenon reproduction data and the transient test data, thereby identifying a transient internal characteristic value (Col. 22-24, Lines 48-4).



A virtual testing system which incorporates a functional model, as a virtual prototype, having an internal characteristic value identified by a characteristic value identification apparatus comprising condition assigning means for assigning a driving operation condition and an environment condition to the characteristic value identification apparatus, observation means for observing reproduction data obtained by the virtual prototype when the driving operation condition and the environment condition are assigned (Col. 2, Lines 6-51, fig. 3), and evaluation means for evaluating an observation result of the observation means (Col. 2, Lines 6-51, fig. 1).

### ***Claim Objections***

4. Claims 7-10, 12-15 and 17-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitation of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: prior art fail to teach the error does not lie within an allowable range the fourth step repeatedly corrects a predetermined transient internal characteristic value within the transient phenomenon reproduction data until the error lies within the allowable range, and determines the transient internal characteristic value to be identified when the error lies within the allowable range. The use of variance deviation as a

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time history sensitivity, maximum sensitivity, the evaluation of re-identification machine test data.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung S Lau whose telephone number is 571-272-2274. The examiner can normally be reached on M-F 9-5:30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on 571-272-2269. The fax phone numbers for the organization where this application or proceeding is assigned is 703-872-9306

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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